

C L A I M S

1. A device for blocking an optical lens,  
2 comprising a lens holding tool to which the optical lens  
3 is to be fixed through a bonding agent, characterized by  
4 comprising:

5 a loading table on which the optical lens is  
6 to be placed with a concave surface thereof facing up;  
7 a centering device which causes a geometric  
8 center of the optical lens to coincide with a center of  
9 said loading table;

10 a dripping device which drips the bonding  
11 agent onto the concave surface of the optical lens; and  
12 a moving device which moves the optical lens  
13 to a block position of said lens holding tool.

2. A device for blocking an optical lens  
2 according to claim 1, characterized in that  
3 said centering device comprises a plurality of  
4 pins which are movable in a radial direction and a  
5 circumferential direction of said loading table and  
6 press a peripheral surface of the optical lens,  
7 each of said pins comprising a locking portion  
8 at an upper end thereof which locks a peripheral edge of  
9 the optical lens on a concave surface side.

3. A device for blocking an optical lens  
2 according to claim 1, characterized in that said  
3 centering device comprises a clamp base which surrounds

4 said loading table, a rotary base which is rotatably  
5 built into said clamp base, a driving device which  
6 pivots said rotary base, a plurality of stationary  
7 shafts which project on said clamp base, a plurality of  
8 clamp members which are pivotally supported by said  
9 stationary shafts, respectively, a plurality of moving  
10 shafts which project on said rotary base and extend  
11 through respective elongated holes in said clamp members  
12 and pivot said clamp members respectively toward said  
13 loading table during centering of the optical lens, and  
14 a plurality of pins which respectively project on said  
15 clamp members and press a peripheral surface of the  
16 optical lens during centering.

4. A device for blocking an optical lens  
2 according to claim 2, characterized in that  
3 said loading table is swingably supported by  
4 support means, and

5 said moving device moves said loading table  
6 upward to move the optical lens upward along said pins  
7 so as to move the optical lens to the block position.

5. A device for blocking an optical lens  
2 according to claim 1, characterized by further  
3 comprising a gap setting device which moves said lens  
4 holding tool and the optical lens in directions to  
5 relatively approach each other to set a predetermined  
6 gap therebetween, so that the binding agent is spread.

6. A device for blocking an optical lens

2 according to claim 5, characterized in that a dripping  
3 amount of bonding agent to be dripped by said dripping  
4 device onto the optical lens is calculated from at least  
5 one of a thickness of a peripheral edge portion of the  
6 bonding agent after spreading, a diameter of said lens  
7 holding tool, a radius of curvature of a blocking  
8 surface, a diameter of the optical lens, a radius of  
9 curvature of the concave surface, and a gap between said  
10 lens holding tool and the optical lens.

7. A device for blocking an optical lens  
2 according to claim 5, characterized in that a gap  $d$  in a  
3 vertical direction between a peripheral portion of a  
4 blocking surface of said lens holding tool and a  
5 peripheral portion of the optical lens on a concave  
6 surface side is calculated by the following equation:

$$7 \quad d = -\sqrt{R^2 - \frac{LDb^2}{4}} + \sqrt{R^2 - \frac{YDh^2}{4}}$$

8 where  $R$  is the radius of curvature of the concave  
9 surface of the optical lens,  $LDb$  is the diameter of the  
10 optical lens, and  $YDh$  is the diameter of said lens  
11 holding tool.

8. A device for blocking an optical lens  
2 according to claim 5, characterized in that a dripping  
3 amount  $Q$  of bonding agent is calculated by the following  
4 equation:

$$5 \quad Q = \pi TeDh^2 + \pi \left[ -\frac{1}{3}(R - \sqrt{R^2 - Dh^2})^3 + R(R - \sqrt{R^2 - Dh^2})^2 \right] \\ - \pi \left[ -\frac{1}{3}(Ch - \sqrt{Ch^2 - Dh^2})^3 + Ch(Ch - \sqrt{Ch^2 - Dh^2})^2 \right]$$

6 where  $Te$  is the thickness of the peripheral portion of  
 7 the bonding agent after spreading,  $Ch$  is the radius of  
 8 curvature of a blocking surface of said lens holding  
 9 tool,  $R$  is the radius of curvature of the concave  
 10 surface of the optical lens, and  $2Dh$  is the diameter of  
 11 the bonding agent after spreading.

9. A device for blocking an optical lens  
 2 according to claim 5, characterized in that a dripping  
 3 amount of bonding agent is calculated by the following  
 4 equation:

$$5 \quad Q = \pi(Tc + \sqrt{R^2 - Dh^2} - \sqrt{Ch^2 - Dh^2})Dh^2 \\ + \pi \left[ -\frac{1}{3}(R - \sqrt{R^2 - Dh^2})^3 + R(R - \sqrt{R^2 - Dh^2})^2 \right] \\ - \pi \left[ -\frac{1}{3}(Ch - \sqrt{Ch^2 - Dh^2})^3 + Ch(Ch - \sqrt{Ch^2 - Dh^2})^2 \right]$$

6 where  $Tc$  is the thickness of a center of the bonding  
 7 agent after spreading,  $2Dh$  is the diameter of the  
 8 bonding agent after spreading,  $Ch$  is the radius of  
 9 curvature of a blocking surface of said lens holding  
 10 tool, and  $R$  is the radius of curvature of the concave  
 11 surface of the optical lens.

10. A device for blocking an optical lens  
 2 according to claim 1, characterized in that said  
 3 dripping device comprises a gear pump which supplies the  
 4 bonding agent, a driving device which drives said gear

5       pump intermittently, and a dripping device which drips  
6       the bonding agent supplied by said gear pump onto the  
7       concave surface of the optical lens.

11.       A method for blocking an optical lens, of  
2       interposing a molten bonding agent between the optical  
3       lens and a lens holding tool and letting the molten  
4       bonding agent to solidify so as to fix the optical lens  
5       to the lens holding tool, characterized by comprising  
6       the steps of:

7               dripping the bonding agent onto a concave  
8       surface of the optical lens;

9               urging the lens holding tool against the  
10      bonding agent on the optical lens to spread the bonding  
11      agent so as to hold the lens holding tool and the  
12      optical tool at a predetermined gap; and

13               cooling the bonding agent to solidify so as to  
14      integrally bond the lens holding tool and the optical  
15      lens.